

I claim:

1. A magnetic torque converter, comprising:

a) a first rotating shaft with a flanged end that comprises one or more magnetically responsive materials;

5 b) a second rotating shaft with a flanged end that comprises one or more permanent magnets; and

c) a bearing between the first shaft flanged end and the second shaft flanged end that allows independent rotation of the first and second flanged ends along a common axis;

10 wherein the permanent magnets in one or both flanged ends exerts a magnetic force that holds the two flanged ends together, thereby transmitting rotating force from one rotating shaft to another rotating shaft.

2. The magnetic torque converter of claim 1, wherein the flanged ends have one or more surfaces facing each other and wherein the one or more permanent magnets are
15 fixed within at least one flanged end in an orientation that directs one or more magnetic fields across a space into the other flanged end in a non-perpendicular direction, allowing magnetic pull that is not perpendicular with the flange surface.

3. The magnetic torque converter of claim 2, wherein the non-perpendicular direction is between 5 and 85 degrees away from the perpendicular of the flange
20 surface.

4. The magnetic torque converter of claim 2, further comprising one or more permanent magnets that exert magnetic force in a perpendicular direction across a space between the flanges.

5. The magnetic torque converter of claim 1, wherein the flanges are at least 50%
25 by area round flat plates with their largest surfaces facing each other and positioned within 45 degrees of the perpendicular to the common axis.

6. The magnetic torque converter of claim 1, wherein the flanges comprise primarily a non metallic material with embedded magnets.

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7. The magnetic torque converter of claim 1, wherein one or more magnetic forces between the flanges are maximum when the axes of rotation of the flanges are located opposite each other, providing the property of self-alignment.

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8. The magnetic torque converter of claim 1, wherein the magnetic field vector between the flanges is adjusted by altering at least one of a) distance of magnets from the spinning axis vector, b) angle of magnets with respect to the spinning axis vector, c) dissipation of magnetic field through a magnetic field director, and d) addition of a magnetic field.

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9. The magnetic torque converter of claim 1, further comprising at least one electromagnet that generates at least one magnetic field that adds to or subtracts from the magnetic field at a flanged end.

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10. The magnetic torque converter of claim 10, wherein the at least one electromagnet is energized by one or more capacitor discharge circuits controlled by a semiconductor switch.

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11. A propeller control, comprising the magnetic torque converter of claim 1 and a propeller, wherein the propeller is connected to the second rotating shaft.

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12. A powered watercraft, comprising the magnetic torque converter of claim 1 operatively connected between an engine of the watercraft and a propeller.

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13. An axial connector that transmits rotational force from a first shaft to a second shaft, comprising:

a) a first coupler that connects to a first rotating shaft and that comprises one or more magnets;

25 b) a second coupler that connects to a second rotating shaft and that comprises one or more magnets; and

c) a bearing between the first coupler and the second coupler,

wherein the magnets create magnetic fields that holds the two couplers together and the magnetic fields are oriented such that maximum magnetic attraction occurs when the couplers are located at the center of their rotating axes.

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5 15. The axial connector of claim 14, further comprising one or more immobile electromagnets that exert a magnetic force on at least one coupler.

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16. A rapid propeller control, comprising the axial connector of claim 15 and a propeller, wherein the second coupler is coupled to the propeller.

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17. The axial connector of claim 15, wherein the one or more immobile
10 electromagnets are energized by a capacitive discharge circuit controlled by a semiconductor switch.

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18. A rapid shaft stop device comprising:

a) a rotating shaft with one or more attached permanent magnets;

b) one or more immobile electromagnets located near the one or more embedded
15 magnets; and

c) one or more solid state switch controlled capacitive discharge circuits;

wherein the one or more solid state switches stop or slow the shaft by discharging one or more capacitors into the one or more immobile electromagnets, thereby creating a rapid magnetic pulse which acts upon the one or more embedded magnets.

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20 19. The rapid shaft stop device of claim 18, that can slow the shaft by at least 90% within 500 milliseconds of activation by one or more solid state switches.

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20. The rapid shaft stop device of claim 18, wherein at least one capacitive discharge circuit discharges a maximum instantaneous pulse of at least 100 amps at more than 100 volts.

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25 21. A watercraft comprising a motor and a propeller that is controlled by the rapid shaft stop device of claim 18.